

What is claimed is:

1. A drive device of a liquid droplet discharge head comprising a piezoelectric vibrator and discharges liquid droplets from a discharge section by applying a  
5 predetermined drive waveform to said piezoelectric vibrator; wherein, a drive control unit is provided that drives said piezoelectric vibrator according to said drive waveform composed of a curved shape.

2. A drive device of a liquid droplet discharge head according to claim 1, wherein  
10 said drive waveform is free of sharp edges.

3. A drive device of a liquid droplet discharge head according to claim 1, wherein  
said drive waveform is generated by being converted from a rectangular or trapezoidal square wave by a waveform conversion unit.

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4. A drive device of a liquid droplet discharge head according to claim 1, wherein  
said drive waveform contains a discharge waveform for discharging said liquid droplets,  
and a microvibration waveform that minutely vibrates said piezoelectric vibrator to a  
degree that it does not discharge said liquid droplets.

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5. A film manufacturing apparatus provided with a drive device of a liquid droplet  
discharge head according to claim 1 that performs film manufacturing treatment at a  
predetermined location on a treated object by discharging a functional liquid from said  
liquid droplet discharge head.

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6. A film manufacturing apparatus according to claim 5, wherein said film manufacturing apparatus is a device that produces a color filter.

7. A film manufacturing apparatus according to claim 5, wherein said film manufacturing apparatus is a device that forms a film having for its constituent element an organic electroluminescence element.

8. A film manufacturing apparatus according to claim 5, wherein, said film manufacturing apparatus is a device that discharges a liquid containing metallic fine particles from said liquid droplet discharge head, and which forms a film to serve as metal wiring by discharging said liquid onto a desired surface.

9. A drive method of a liquid droplet discharge head comprising the discharge of liquid droplets from a discharge section by extending and retracting a piezoelectric vibrator according to a predetermined drive waveform; wherein said method has processing of driving said piezoelectric vibrator according to said drive waveform composed of a curved waveform.

10. A drive method of a liquid droplet discharge head according to claim 9, wherein said drive waveform is free of sharp edges.

11. A drive method of a liquid droplet discharge head according to claim 9, wherein said drive waveform is generated based on a rectangular or trapezoidal square wave.

12. A drive method of a liquid droplet discharge head according to claim 9, wherein

said drive waveform contains a discharge waveform for discharging said liquid droplets, and a microvibration waveform that minutely vibrates said piezoelectric vibrator to a degree that it does not discharge said liquid droplets.

5 13. A film manufacturing method that forms a film using the drive method of a liquid droplet discharge head according to claim 9.

14. A film manufacturing method according to claim 13, wherein, said film manufacturing method is used when forming a film to serve as a constituent element of a  
10 color filter.

15. A film manufacturing method according to claim 13, wherein, said film manufacturing method is used when forming a film serving as constituent element of an organic electroluminescence element.

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16. A film manufacturing method according to claim 13, wherein, said film manufacturing method forms a film to serve as metal wiring by discharging a liquid containing metallic fine particles from said liquid droplet discharge head onto a desired surface.

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17. Electronic equipment provided with a device produced using a film manufacturing method according to claim 13.

18. A device production method for producing a device by coating a functional liquid  
25 at a predetermined location on a substrate, wherein a step is contained in which the

functional liquid is discharged at a predetermined location of said substrate from said liquid droplet discharge head using a drive method of a liquid droplet discharge head according to claim 9.